



EUR 352-21 / WG99-02
RTCA Paper No. 296-21/SC234-015

Saint Denis, November 17, 2021
Washington, November 17, 2021

EUROCAE WG-99 Plenary #9 Kick Off
RTCA SC-234 Plenary #6 Kick Off

DATE: November 10, 2021
TIME: 09:00 AM– 1:00 PM EST/1300 – 1700 CET
PLACE: Virtual
CONTACTS:

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AGENDA

PARTICIPANTS

Name	Organization
Andreas Rochau, SPI	SAFRAN
Andrew Diaz	Panasonic
Anna Guegan	EUROCAE
Anne Vaske	TU Braunschweig - Institute for EMC
Bassam Chamas	Panasonic
Billy Ogunsola	UK CAA
Brian Hint	Federal Aviation Administration
Brian Verna	Federal Aviation Administration
Carsten Schwarzbach	Lufthansa
Christina Clausnitzer	Federal Aviation Administration
Dan Griffith	The Boeing Company
Dennis Lewis	The Boeing Company
Ed Speed	QinetiQ
Gerlof Osinga	The Boeing Company

Greg Weatherford	Panasonic
Jamie Lutkus	Astronics
Joerg Rohwer	Lufthansa Technik
Jonathan Tanner	Gulfstream
Karan Hofmann	RTCA, Inc
Kenneth Webb	Collins Aerospace
Kevin Swiatek	United Parcel Service
Kurt Stiefel	Federal Aviation Administration
Luca Musso	Leonardo-Finmeccanica
Joachim Kienzler	Lufthansa
Matt Lukaszewicz	Astronics
Mike Airey	LSA Electonmagnetics
Musso Luca	Leonardo-Finmeccanica
Naruto Yonemoto	Electronic Navigation Research Institute
Peter Walther	Airbus
Praf Patel	Garmin
Robert Kebel	Airbus
Sal Navidi	Honeywell
Stephan Schulte	Lufthansa
Stephane Andre	AEROCONSEIL - AKKA TECHNOLOGIES
Thiemo Stadler	Airbus
Trong Nguyen	NASA

Welcome, Introductions and Administrative Remarks

EUROCAE WG-99 Co-chairs: Robert Kebel and Stephan Schulte:
 EUROCAE WG-99 [Technical Programme Manager](#): Anna Guégan
 RTCA SC-234 Chair : Jamie Lutkus
 RTCA SC-234 Government Authorized Representative: Brian Verna
 RTCA SC-234 Program Director: Karan Hofmann

Opening remarks on Anti-Trust Laws, IP Policy, and Membership Policy provided by Karan Hofmann and Anna Guegan. They also provided a short presentation on RTCA and EUROCAE organization and committee/working group process.

Chairmen lead introductions of participants.

Problem statements:

- Front door coupling with radio altimeter antenna due to 5G. Documented in SC-239.
- Back door coupling with aircraft systems due to WiFi 6E technology.

Schedule:

- Something to the PMC by April 2022 for update to DO-363/ED- 130A& DO-307A/ED-329 (along with equivalent ED documents)
- SC needs to submit the final document updates to RTCA/EUROCAE Secretariate by April 2022, after 45 days for final review and provide comment/open consultation and all comment resolution.
 - Expectation is to have an updated and issued revision of the affected documents approved and published by mid-June 2022 (through PMC and Council).

Minutes:

- Anyone who doesn't have an RTCA AerOpus account, go to the link below and request an account:

<https://aeropus.i3cloudservices.com/>

- Working Group Secretary: Sal Navidi primary, Matt Lukasiewicz as secondary
- Next full working group meeting would be mid-December
 - December 15th penciled in
- The PED ARC Report was published in 2013. SC-234 was established in 2015
 - Met to discuss a new document providing acceptable practices for PED certification on aircraft
 - Output of the meeting was RTCA DO-363 for operators/STC holders and RTCA DO-307 for Aircraft OEMs
- FAA acceptance will be via AC 20-164 to accept the updated versions of DO-363 & DO-307A
- EUROCAE planned publication date was Q1 2022 (31 Mar '22) but EUROCAE will plan for June '22 to align with the RTCA TOR.
- Robert talked through addressing 5G frequency expansion - main focus is evaluating the path loss requirements for radio altimeters since these were not evaluated for the original DO-307A issuance.
- SC-239 data can be shared showing existing information, a link is provided later in the meeting minutes.
- Operator constraints would be implemented in the interim while test methods are determined/evaluated.
 - On the operational / airline side - operator constraints are the "worst case" and should be avoided for better methods and guidance.
- DO-307A impacts due to the 5G frequency expansion is a re-evaluation of the following assumption:
 - Directional antennas would have little to know interference due to the effect being a slight increase to the receiver noise floor and receiver outputs. The interference would be at the far limits of the frequency outputs.

- FAA statements:
 - Tolerance due to IPL (path loss) issue for radio altimeter outputs at 5G going forward would be mitigated against by aircraft OEMs via on-aircraft testing.
 - Tolerance due to WiFi 6GHz going forward would be mitigated against by equipment OEMs via equip qual testing and (if necessary) on-aircraft testing.
- Discussion on PED emissions concerns related to WiFi 6E:
 - Presentation link is provided later in the minutes.
 - Very Low Power (VLP) is less than 100mW and this is not a concern for 6 GHz PED tolerance
 - Low Power Indoor-only (LPI) would be ~1W which is a minor concern for PED tolerance
 - Standard Power is US only and would be ~4W which is a concern for PED tolerance
- Discussion on the helicopter radio altimeter issue:
 - 5G interference with radio altimeters on helicopters is an elevated area of concern.
 - Path loss significance in helicopters seems to be a main issue.
 - Existing test data can be provided to aid in proper guidance updates related specifically to helicopter OEMs and operators.
- Process for the working group:
 - Kick-off meeting and split into working groups - Nov 10 2021
 - Working group presentations - Dec 15 2021
 - Draft documents - Feb 2022
 - Document completion - End Feb 2022
 - Final Review and Comment (FRAC) / Open Consultation (OC) - March/April 2022
 - All comments resolved, Committee review complete and document ready - end of April 2022
- For the intended workflow: the goal is to keep document updates to DO-307/ED-239 & DO-363/ED-130 to a minimum with it limited to an Appendix that justifies why the conditions remain good.
 - Half page Appendix would be recommended.
 - The main goal should be to meet the regulatory needs.
 - The working group outputs will be tailored based on this.
- Work group division
 - A follow up meeting to discuss the background of the original committee will be held Monday Nov 22 at 4PM UTC (10AM Eastern, 9AM Chicago)
 - Weekly meetings
 - Next week is a prep week (no meetings)
 - Week of 22 Nov:
 - 22 Nov introductory meeting to review background on the original committee

- 23 Nov for WiFi 6E
 - 24 Nov for 5G
 - After week of 22 Nov - weekly meetings will be held for each working group
 - Tuesday for Wifi 6E
 - Thursday for 5G
 - Meeting for all groups will be 15 Dec
 - For initial WiFi 6E standards discussions:
 - Review WiFi 6E standards presentation:
 - https://www.wifi.org/download.php?file=/sites/default/files/private/202103_Wi-Fi_6E_and_6_GHz_Update.pdf
 - Robert - will look into and providing the EN/FCC standards (covering US/EU)
 - Others can provide input on additional standards
 - For initial 5G standards discussions:
 - Watch two YouTube videos below which summarize the SC-239 white paper:
 - [RTCA Technical Webinar: Interference Risk on Radar Altimeters from Planned 5G Telecommunication](#)
 - [RTCA, Inc. reports Potential 5G Interference to Radio Altimeters](#)
 - SC-239 white paper needs to be reviewed by everyone prior to meeting:
 - https://www.rtca.org/wp-content/uploads/2020/10/SC-239-5G-Interference-Assessment-Report_274-20-PMC-2073_accepted_changes.pdf
- Discussion on how RTCA document updates will be made:
 - RTCA will appoint someone with write access to the word document.
 - PDF document is available to all on the RTCA website.
 - DO-307A/ED-239
 - DO-363/ED-130A
- Question from Andrew Diaz on Policy Statement for PED, right now DO-294 is still used:
 - AC 20-164A references DO-363 and is used in industry
 - Policy Statement update to include DO-363 is requested
 - FAA will look into DO-363
- RTCA AerOpus will be used to share all information and first set of minutes/links will be distributed this week.